REMARKS

Claims 29-34 are pending in the subject application. No claim has been added, cancelled or amended herein.

In view of the arguments set forth below, applicant submits that the Examiner's rejections made in the June 25, 2003 Final Office Action have been overcome. Applicant therefore respectfully requests that the Examiner reconsider and withdraw these rejections.

Rejections under 35 U.S.C. §103(a)

The Examiner rejected claims 29-33 under 35 U.S.C. §103(a) as allegedly unpatentable over Oestberg et al. (U.S. Patent No. 4,634,664) for the reasons elaborated in the previous Office Action dated January 9, 2003.

The Examiner stated that Oestberg et al. teach use of a three cell-containing, xenogeneic hybridoma fusion partner that does not produce antibody, and the use of said cell as a fusion partner to produce monoclonal antibodies. While acknowledging that Oestberg et al. do not teach that their fusion partner cell is a "trioma" as per the definition of the term in the specification (i.e., a cell line formed from the fusion of three cells wherein a human-murine hybridoma is fused with a human lymphoid cell), the Examiner also asserted that Oestberg et al. teach heteromyeloma cell fusion partners (e.g., mouse/human fused cells, citing claim 14). The Examiner concluded that it would have been *prima facie* obvious, to one of ordinary skill in the art at the time the invention was made, to have produced the claimed method because Oestberg et al. teach the claimed method except for use of a trioma cell line formed from the fusion of three cells wherein a human-murine hybridoma is fused with a human lymphoid cell.

In response, applicant respectfully traverses, and maintains that

the Examiner has failed to establish a *prima facie* case of obviousness of claims 29-33.

To establish a *prima facie* case of obviousness, the Examiner must demonstrate with respect to each claim, firstly, that the cited reference teaches or suggests every element of the claim; secondly, that one of ordinary skill in the art would have been motivated to make the invention based on the teachings of the cited reference; and thirdly, that there would have been a reasonable expectation that the claimed invention would succeed.

Applicant maintains that the Examiner has failed to do this.

As applicant pointed out in his April 9, 2003 Amendment, Oestberg et al.'s xenogeneic hybridoma fusion partner is a heterohybridoma, not a heteromyeloma. This non-antibody-producing heterohybridoma, SPAZ-4, was produced by fusing the mouse SP2 myeloma cell (which itself is a mouse myeloma/mouse lymphocyte hybrid) with a human peripheral blood lymphocyte (PBL) (Oestberg et al., column 2, last paragraph, continued on column 3). Accordingly, the "trioma" fusion partner developed by Oestberg et al. is obtained by fusing a heterohybridoma, not a heteromyeloma, with a human PBL.

Applicant emphasizes that, contrary to the Examiner's assertion (citing claim 14 in Oestberg et al.), Oestberg et al. do not teach a heteromyeloma cell fusion partner. Applicant notes that claim 14 in Oestberg et al. teaches, as is evident from the following quotation, a xenogeneic hybridoma (i.e., a heterohybridoma) but does not teach a heteromyeloma cell fusion partner:

> 14. A method of producing the hybridoma cell line of claim 1 which comprises making a xenogeneic hybridoma cell drug resistant, and fusing this cell to an antibody producing cell which is genetically compatible with the non-transformed partner in the xenogeneic

hybridoma and selecting a desired hybrid.

By contrast, applicant's trioma recited in claims 29 and 30 is made by fusing a human myeloma cell with a mouse myeloma cell to form a heteromyeloma cell. It is this heteromyeloma cell, and not the heterohybridoma of Oestberg et al., which is then fused with a human PBL, splenocyte, or lymph node lymphocyte to form a trioma fusion partner cell. Because this element of the claims, i.e., the use of a heteromyeloma, is not taught in Oestberg et al., the Examiner fails to satisfy the first requirement of the three-part test for establishing a *prima facie* case of obviousness with respect to claims 29 and 30.

On pages 3-4 of the Final Office Action, the Examiner acknowledged applicant's argument (made in the response to the previous Office Action) that Oestberg et al. teach use of a heterohybridoma, not of a heteromyeloma. The Examiner stated, however, that the specification does not specifically define the terms heteromyeloma or heterohybridoma and appears to these use two terms interchangeably. According to the Examiner, the specification defines "trioma" as a cell line formed from the fusion of three cells wherein a human-murine hybridoma is fused with a human lymphoid cell (citing page 23, lines 19-24 of the specification). Further, according to the Examiner, the specification also discloses that "[t]he present invention provides a trioma cell obtained by fusing a heteromyeloma cell which does not produce any antibody with a human lymphoid cell" (citing page 3, lines 15-17). The Examiner concluded that the only way these two statements can be reconciled is if the two terms (i.e., human-murine hybridoma, a.k.a. heterohybridoma, and heteromyeloma) are used interchangeably.

Applicant respectfully disagrees with the Examiner's conclusion for the following reasons.

Firstly, applicant maintains that, as a factual matter, a heterohybridoma cell and a heteromyeloma cell are different types of cells. The *Dictionary of Cell and Molecular Biology* (Third edn., J.M. Lackie and J.A.T. Dow [1999] Academic Press, London; available online at http://www.mblab.gla.ac.uk/~julian/Dict.html) defines a hybridoma as "a cell hybrid in which a tumour cell forms one of the original source cells. In practice, confined to hybrids between T- or B-lymphocytes and appropriate myeloma cell lines" (**Exhibit A**). The *Dictionary* also defines a myeloma cell as a "neoplastic plasma cell. ... Myeloma cell lines are used for producing hybridomas in raising monoclonal antibodies" (**Exhibit B**). (A plasma cell, according to the same dictionary, is "a terminally differentiated antibody-forming, and usually antibody-secreting, cell of the B-cell lineage.") The "hetero" prefix simply indicates that the cells being fused are derived from different species. Hence, a heterohybridoma is a cell hybrid in which a myeloma cell from one species is fused with a T- or B-lymphocyte from a different species, whereas a heteromyeloma is a neoplastic cell formed from the fusion of two neoplastic plasma cells from different species. Therefore, a heterohybridoma is not a heteromyeloma, and the terms are not, as the Examiner concluded, interchangeable.

Applicant notes that although the Examiner drew his conclusion that the terms heteromyeloma and heterohybridoma are interchangeable based on quoted portions from the specification, the Examiner has not identified any statement in the specification or in remarks made by applicant indicating that these two terms are synonymous or interchangeable.

Secondly, applicant submits that from the definitions of the terms heteromyeloma and heterohybridoma discussed above, the two statements from the specification quoted by the Examiner can be easily reconciled without concluding that these two terms are

used interchangeably in the specification.

To recapitulate, a heterohybridoma is a hybrid cell formed by the fusion of a myeloma cell from one species with a T- or B-lymphocyte from a different species. However, in the special case where the B-lymphocyte fusion partner used to generate a heterohybridoma is itself a neoplastic plasma cell (i.e., a myeloma cell), then a heteromyeloma will be produced. Thus, in this instance, all heteromyeloma cells could be considered heterohybridomas, but only rarely can heterohybridomas be considered heteromyelomas.

Notwithstanding the above points, in focusing on the specific properties and applications of a heteromyeloma cell (as in "[t]he present invention provides a trioma cell obtained by fusing a heteromyeloma cell which does not produce any antibody with a human lymphoid cell"; see page 3, lines 15-17 of the specification), it would be incorrect to equate this type of cell with a heterohybridoma as the Examiner has done. Applicant maintains that it would similarly be incorrect to equate a general reference to a heterohybridoma (as in claim 14 of Oestberg et al.) with a reference to a heteromyeloma.

In addition to Oestberg et al.'s not teaching the use of a heteromyeloma cell fusion partner, this reference also provides no motivation to make the subject invention using a heteromyeloma, and does not provide any expectation of success in making it.

The Examiner has therefore failed to set forth a *prima facie* case of obviousness. Accordingly, applicant respectfully requests that he reconsider and withdraw the rejection of claims 29 and 30 under 35 U.S.C. §103(a).

Claims 31-33 depend, directly or indirectly, from claim 29.

Applicant therefore submits that the arguments made in relation to claims 29 and 30 also obviate the rejections of claims 31-33. Accordingly, applicant also respectfully requests that the Examiner reconsider and withdraw the rejection of claims 31-33 under 35 U.S.C. §103(a).

Conclusion

In view of the remarks made herein, applicant respectfully submits that all of the claims pending in this application are in condition for allowance. Accordingly, allowance is earnestly solicited.

If a telephone conference would be of assistance in advancing the prosecution of the subject application, applicant's undersigned attorneys invite the Examiner to telephone them at the number provided below.

No fee is deemed necessary in connection with the filing of this Communication. However, if any fee is required, authorization is hereby given to charge the amount of such fee to Deposit Account No. 03-3125.

Respectfully submitted,

I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to:
Commissioner for Patents, P.O. Box 1450
Alexandria, VA 22313-1450

8/25/03
Alan J. Morrison Date
Reg. No. 37,399

John P. White
Registration No. 28,678
Alan J. Morrison
Registration No. 37,399
Attorneys for Applicant
Cooper & Dunham LLP
1185 Avenue of the Americas
New York, New York 10036
(212) 278-0400